



National Park Service Transportation Challenge

Reauthorization Resource Paper

20 September 2007





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*Nothing short
of defending
this country...
compares in
importance with
the great central
task of leaving
this land even a
better land for
our descendants
than it is for us*

Theodore Roosevelt

Cover photos

Top: Bison using roadway in Yellowstone National Park. Photo by Chris Jordan.

Middle: Crater Lake National Park overlook. Photo by Gary MacFadden.

Bottom: Going-to-the-Sun Highway, Glacier National Park. Photo by Karen Nichols, National Parks Conservation Association.



Forward

Parks are of America's National Interest because they

- contribute to the economy and cultural identity of local communities;
- contribute to the quality of life for Americans;
- represent the values and ideals most important to our country's heritage;
- reflect our Nation's leadership towards balancing conservation, and
- parks are this generation's gift to future generations.

Care of these great lands, facilities such as roads, and the American-born idea called "parks" is a Federal responsibility.

*Care of America's
National Parks
is a Federal
responsibility*



Abstract

America's national park system draws visitors from across the nation and around the world. Visitors enjoy scenic wonders, learn about important events in our nation's history, and visit monuments to our nation's heroes. An efficient transportation system comprised of roads, bridges, parking lots, and shuttles is pivotal to the "balancing act" between access for millions of annual visitors and protecting the natural and cultural resources of the 391 park units.

This document presents the needs of the National Park Service (NPS) Transportation System to be considered and addressed in the reauthorization of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Public Law 109–59), signed into law August 10, 2005.

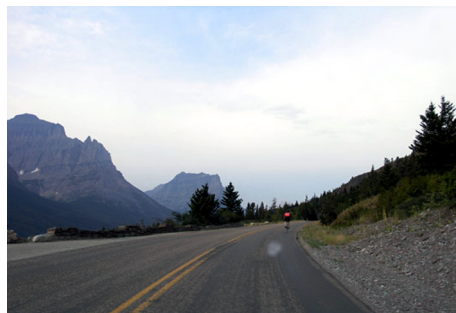
Included are summaries of the overall condition of the NPS Transportation System – a diverse and disparate network spread across 391 park units throughout the United States and its territories. The document also presents funding recommendations for continuing to restore and improve the NPS Park Roads and Parkways Program (PRPP).

Finally, the document includes recommendations for legislative and administrative changes for improving the management of the NPS Transportation System.

The NPS has identified a multi-modal transportation system investment need of \$825 million annually between FY 2010–15 into five focus areas; this period concludes with the ***Centennial Initiative of the National Park Service*** in 2016.

*The NPS manages
391 park units
throughout the
United States and
its territories*

*The NPS proposes
a multi-modal
transportation
system investment
of \$825 million
annually*



Photos

Left: Family spring bike ride in Teton National Park. Photo by Tim Young.

Right: Going-To-The-Sun Highway, Glacier National Park. Photo by Chris Jordan.



These transportation system needs are categorized as:

- **Improving the Roads and Bridges System: \$644 million annually for roads and \$36 million annually for bridges -- \$680 million annually**
Prepare the National Park System transportation facilities for the 2016 Centennial by bringing all facilities up to an acceptable condition, as determined by the Facility Condition Index (FCI).
- **Building Unfinished Parkways: \$50 million annually**
Complete the next phase of the Natchez Trace and Foothills Parkways in time for the 2016 Centennial. The NPS can celebrate a century-long road construction program nearly completed by its Centennial in 2016.
- **Providing Alternative Transportation Services: \$60 million annually**
Expand alternative transportation options for park visitors to serve as a model for sustainable transportation. Complete a comprehensive, collaborative, integrated, multi-modal transportation plan for the NPS. Implement the plan in a prudent, logical, economical, and environmentally green approach. Build strong relationships with local, regional, and multi-regional transportation communities.
- **Restoring Park Trail Facilities: \$15 million annually**
Bring the NPS trail facilities up to an acceptable condition, meet Americans with Disabilities Act requirements, and ensure an appropriate level of service for all park visitors by the 2016 Centennial.
- **Planning and Deploying Intelligent Transportation Systems (ITS): \$20 million annually**
Use Intelligent Transportation Systems technologies to provide visitors with real-time information on delays from road construction, on weather-related road conditions, on transit arrival times, and on other aspects of travel to and within National Parks to make it more convenient and more safe while reducing adverse impacts on natural resources.

Expand alternative transportation options for park visitors

Bring NPS trail facilities up to an acceptable condition



Executive Summary

The National Park Service (NPS) has made progress under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). To meet future goals, the NPS objective is to restore, build, and reshape its Transportation System by giving priority and focus to these categories of need.

- Category I – Existing System of Roads and Bridges
- Category II – Congressionally Mandated Parkway
- Category III – Alternative Transportation Systems
- Category IV – Trails
- Category V – Intelligent Transportation Systems (ITS)¹

NPS Accomplishments

SAFETEA-LU investment has resulted in improvements in the efficiency, effectiveness and condition of the NPS Transportation System.

- Roads – SAFETEA-LU provided funding to rehabilitate approximately 2% of the NPS roads annually.
- Bridges – Six bridges were rehabilitated, making 98% of the NPS bridges structurally sound.
- Parkway Capital Improvements – Four out of six congressionally mandated parkways have been completed. Natchez Trace Parkway is complete with the exception of a multi-use trail, and the Foothills



Over 98% of NPS bridges are structurally sound

Four out of six parkways have been completed

Photos

Left: Skyline Drive, Shenandoah National Park. NPS photo.

Right: Historic Red Bus touring car in Glacier National Park. Photo by Chris Jordan.

¹ Category V – Intelligent Transportation Systems (ITS) is proposed as a new administrative program category. ITS investments have been eligible and funded as part of other PRPP categories; however, the NPS believes that going forward ITS requires a designated funding stream given the intense focus on the use of existing fund sources on working down the backlog of road, bridge, alternative transportation and trail improvement needs.



Parkway's "missing link" is complete with the exception of a series of bridge structures.

- Reduction of Air, Noise, and Visual Pollution – The National Park Transportation Program directly benefits the environment through fuel conservation and reductions in noise and air pollution. High-occupancy vehicles – particularly those that use clean fuels – have eased congestion and reduced air and noise pollution.
- Leveraged Federal Dollars – From 1999 to 2005, \$61 million of Category III funds have leveraged more than \$1 billion in funds through partnership agreements and service and concession contracts funding non-NPS capital and operating expenses for alternative transportation systems in more than 110 national park units.
- Transportation Partnerships - The NPS has expanded its transportation partnerships strategy which now includes 22 alternative transportation system affiliations between the NPS and other public and private transportation partners. The NPS is the recipient of substantial investment from its partners in other capital investments and operating costs serving both park and regional recreational travel needs.

NPS Challenges

Even though SAFETEA-LU has helped address NPS transportation needs, there is a need to continue this momentum. Challenges include:

- Backlog of Road Needs - In the face of lower-than-expected funding under SAFETEA-LU and chronic inflation which is affecting construction costs, road conditions have not been stabilized. Some 90% of all roadway pavement is in "fair" to "poor" condition. Sound asset management – preserving the current road infrastructure – requires strategies that will improve the overall condition of roads to "good" and then maintain them at that condition.
- Backlog of Bridge Needs - 28 publicly accessible bridges are "structurally deficient" and are in need of rehabilitation or reconstruction. Responsible asset management – protecting the NPS bridge inventory – requires strategies that identify and address structural deficiencies.
- Preventive Treatments - To maintain the roads and bridges now in "good" condition – and successfully protect NPS transportation investments – the NPS must implement an aggressive preventive

\$61 million of Category III funds have leveraged more than \$1 billion in funds through partnerships

28 publicly accessible bridges are structurally deficient



maintenance program. This would extend the life of these facilities, and ultimately save substantial dollars by avoiding full reconstruction costs¹. Estimated replacement costs for NPS roads and bridges are approximately \$20 billion, requiring an annual expenditure of between \$400 million and \$800 million to maintain roads and bridges. Unfortunately, historic funding levels have not kept pace with the National Resource Council (NRC) recommendations. A dollar spent today on preventive maintenance can save \$3-\$5 in the future, so a lack of annual investment in preventative maintenance will only cost more in the long term.

- Backlog of Vehicle Replacement Needs – In 2002, over 80% of the NPS-owned fleet vehicles were more than 12 years old. Despite having since upgraded aging vehicles in 7 park units, 9 park proposals for immediate replacement of 39 vehicles totaling \$9.8 million remain unfunded (including replacement of systems like Tourmobile in the Nation's Capital). Future vehicle replacement needs across the agency, on a cyclic replacement pattern, is estimated to consist of over 160 vehicles (based on current NPS owned/contracted systems) at an average annualized cost of \$5.5 million each year. To meet needs for future or expanded systems and additional vehicles, approximately \$7 million per year would be needed.

In 2002, 80% of the NPS-owned fleet vehicles were more than 12 years old



Photo

Shuttle at Lake McDonald, Glacier National Park. Gary Danczyk photo.

¹ The National Research Council (NRC) has determined that 2% to 4% of the replacement cost of an asset needs to be committed annually to the asset's maintenance and repair.



- Backlog of Trail Needs - 36% of all trails throughout the National Park Service (6,700 miles out of a total of 18,600) are in a “poor” or “seriously deficient” condition, signaling the need for major repair and rehabilitation.
- Reduction in Air, Noise, and Visual Pollution - Over the past five years, the number of national parks in regional air quality non-attainment areas has more than doubled; 128 parks now are in non-attainment areas, where air pollution levels regularly exceed the national ambient air quality standards. The NPS is committed to being a leader in strategies and technologies that can help reduce air and noise pollution in and around parks.
- Safety and Accident Reduction – Federal Highway Administration (FHWA) analysis shows that \$107 million or more in injury and property costs from accidents are incurred annually. NPS is working with FHWA to ensure the safety of the traveling public by implementing a systematic and data-driven approach to safety management in the parks, maximizing the efficiency of scarce financial resources.
- Transportation Planning, Management Systems and Sound Management of Transportation Assets – NPS needs to continue to strengthen its efforts to incorporate well-founded transportation planning strategies into all park General Management Plans. By engaging in cooperative planning activities with local and state jurisdictions and developing management systems, much progress can be made. One goal is to institutionalize sound asset management strategies that save dollars and best serve the visiting public.

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Recommendations

The NPS has investigated several funding options to restore, build, and reshape its transportation system. Based on the transportation needs, the NPS recommends an investment of \$825 million annually in the years following the next reauthorization. Recommendations are organized according to the following five categories.

Category I – Restore the Road and Bridge System

Recommendation: Federal Highway pavement and bridge engineers have completed scientific analyses and have identified an investment need of \$680 million annually to address the backlog of road and bridge projects. This includes the



rehabilitation and reconstruction of significant roads, such as the Going-to-the-Sun Road in Glacier National Park, the George Washington Memorial Parkway, and the Loop Roads in Yellowstone National Park. Also deploy an aggressive preventive treatment program to meet life cycle economic goals.

Strategic Goals: Ensure the major roads and bridges throughout the NPS are in “good” condition¹, improve safety through using current design standards, and apply solid asset management strategies to protect and reduce life cycle costs. Professionals identified “good” as the economically optimum condition for pavement and bridges to meet the facilities design life expectancy.

Category II - Build Unfinished Parkways

Recommendation: Invest \$50 million annually to complete unfinished parkway segments on the Natchez Trace and Foothills Parkways.

Strategic Goals: Complete the next logical phases of the Natchez Trace Parkway’s multi-use trail in three urban areas and complete the two of three remaining segments of the Foothills Parkway.

Category III - Plan and Implement Alternative Transportation Systems

Recommendation: Invest \$60 million annually to replace, expand, maintain, and operate alternative transportation systems.

Strategic Goals: Enable parks to use an integrated transportation

Invest \$60 million annually to replace, expand, maintain, and operate alternative transportation systems



Photos

Left: A rebuilt bridge across the Merced River, Yosemite National Park. NPS photo.

Right: Hiking on the Kaibab Trail, Grand Canyon National Park. Photo by Gary MacFadden

¹ With a Facility Condition Index at or below 0.08.



system approach to visitor access and mobility using a combination of transportation technologies, facilities, and system management strategies. Ensure multimodal connectivity to local communities that will foster cooperation, collaboration and stimulate the economic base of park gateway communities.

Category IV – Restore Park Trails

Recommendation: Invest \$15 million annually for improving trails.

Strategic Goal: Improve trails and establish a program to provide a steady stream of repair, rehabilitation and reconstruction funding to care for front country trails throughout the system, to provide connectivity between modes and to local communities, and to prepare for the Centennial Celebration. Improve trails to an acceptable safety condition for the enjoyment of the public from an average FCI of 0.17 (fair to poor) to 0.10 (good) or better.

Category V – Plan and Deploy Intelligent Transportation Systems (ITS).

Recommendation: Invest \$20 million in ITS annually to pave the way to providing travel information and employing technologies to make travel to and within national parks more convenient and more safe, while reducing air, noise and congestion impacts on natural resources.

Strategic Goals: By 2016 provide real-time information to park visitors on travel conditions and choices, as well as construction work zones and weather events, and alleviate congestion at entry stations and other park locations. As part of the Centennial Initiative the NPS will seek partners for a “20-16” initiative that would provide ITS information services at the 20 most visited national parks and parkways, and at other parks in the vicinity of the 16 largest metropolitan areas. For example, travel web sites can be created with maps and links to alternative modes of transportation. These same sites can contain include real time traffic delays and weather information.

*Invest \$20 million
in ITS annually
to make travel
within national
parks more
convenient*



Investing in the NPS Transportation System

There are many positive outcomes to an \$825 million annual funding level for six years. This level of investment:

- Addresses a national Federal responsibility in time for the National Park Service Centennial Celebration.
- Meets the public's demands by providing a more efficient, effective and safe transportation system.
- Safeguards a \$20 billion road and bridge infrastructure investment by implementing sensible asset management strategies. FHWA analysis indicates that the cost of maintaining roads in "good" condition through preventive maintenance is less than one third the cost of allowing roads to deteriorate to the point that they require rehabilitation.
- Once again establishes the NPS as a world-class organization for the protection and enjoyment of America's great sites and natural wonders.
- Provides an opportunity to educate and showcase to national and international visitors innovative technologies and strategies, such as:
 - Alternative fuel shuttle buses and trolleys (using propane, electric, fuel cells, photo cells, natural gas, etc.);
 - Automated monitoring systems (i.e., video, electronic loops, etc.) that help manage traffic, shorten emergency response times and improve security;
 - Fast Pass technology at park entrances to reduce delay and increase service;
 - Financial partnerships that leverage investment potential in alternative transportation systems;
 - NPS transportation philosophies of building facilities that "lay lightly on the land";
 - Partnerships with gateway communities, such as those adjacent to Zion and Acadia National Parks, for building and implementing transportation services.

*America's
parks reflect the
country's pride
and commitment
to its heritage
and natural
resources*



With the understanding that the United States is in competition for tourism dollars both nationally and internationally, natural and historical attractions are a drawing card for tourism. For the United States the National Parks are a key attraction. America's parks reflect the country's pride and commitment to its heritage and natural resources. To keep competitive the park infrastructure including transportation must be in good condition.



Photo

Cyclists enjoy a closed road during the winter months in Grand Teton National Park. Photo by Tim Young.



Introduction

Visitors from across our nation and around the world come to our parks to learn about and experience America's greatest treasures. It is essential to provide and maintain access to these wonders via a combination of facilities and services.

Sustainable, safe, and efficient transportation not only adds to the visitor's enjoyment, but facilitates the protection of the parks' natural and cultural resources.

This report addresses the ongoing needs of the National Park Service (NPS) to provide and maintain a quality transportation system, and presents recommendations to restore and improve it in preparation for the NPS Centennial in 2016.

These are national assets and the Federal government is responsible for ensuring that the NPS transportation system – and the land on which it rests – are preserved and maintained consistent with the NPS mission, *"... which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."*¹

Today, more than half of the NPS roads are in need of repair, rehabilitation, or reconstruction. Now is the time for an all-out effort to bring our NPS transportation assets up to acceptable levels and to provide alternative transportation services to better accommodate visitation and resource protection.

Investing in the system today will ensure visitors continued access to our country's natural wonders, and opportunities for learning about our natural history and cultural heritage.

Sustainable, safe, and efficient transportation adds to the visitor's enjoyment



Photo

Left: Congestion at entry stations at many parks remains a perennial challenge during peak usage. NPS photo.

¹ The National Park Service Organic Act (16 USC § 1).



NPS Transportation Mission

Preserve and protect resources, while providing safe and enjoyable access to and within the national parks, using sustainable, appropriate, integrated transportation solutions.

Goals

The NPS has developed three broad goals to address this mission:

- Provide and maintain high quality transportation infrastructure and services;
- Deliver safe, efficient, effective, and environmentally-friendly transportation infrastructure projects and services; and
- Serve as a leader and innovator in transportation, as well as in cooperating with local, regional, state, Federal and industry partners.

NPS Transportation Challenges

Providing transportation services consistent with the NPS mission presents numerous challenges.

Adequate Levels of Service and Visitor Safety

- Increased visitation can lead to traffic congestion, pollution, and parking problems.
- As transportation systems age, their carrying capacity declines.
- Most metropolitan-area parkways now serve as commuter routes.



The NPS has developed three broad goals to address the transportation mission

Photos

Left: Roads can be damaged by heavy snow loads in Glacier National Park. Photo by Chris Jordan.

Right: Pinto Basin Road at Joshua Tree National Park. NPS photo.



- During reconstruction, transportation systems must remain open to traffic to ensure visitor mobility, safety and enjoyment, and sensitivity to gateway communities' economic sustainability
- Visitor safety is at risk as congestion grows and transportation systems maintenance is deferred.

Environmental Impacts

- As roadway congestion worsens, noise levels and air and water pollution increase; 128 parks are in air quality non-attainment areas.
- Off-road parking in undesignated resource sensitive areas creates significant natural and cultural resource impacts.

Objectives and Performance Measures

The NPS has developed three objectives and related performance measures to assess and monitor overall transportation system performance and maintenance:

- **Transportation Asset Condition:** To improve the overall condition of the park transportation system by efficient and effective use of limited resources.
- **Transportation Safety:** To provide safe transportation infrastructure and services for visitors and NPS staff, and to reduce accident rates through increased awareness and implementation of accident reduction strategies.
- **Visitor Experience:** To provide transportation services that are convenient and enjoyable for the visitor while consistent with the mission of the NPS to protect and preserve the park resource.

Visitor safety is at risk as congestion grows and transportation systems maintenance is deferred

Some of the performance measures and indices in use include the following:

- **Facility Condition Index (FCI).** Measures the cost of deferred maintenance versus replacement cost. Indicates the condition of individual facilities or major components of transportation facilities.¹
- **National Bridge Inspection Standard.** Determines the extent to which a structure is deficient or in need of critical repair. Safety measures are based on a bridge engineer's inspection.
- **Pavement Condition Rating (PCR).** Measures overall pavement condition either for a segment of road or the total network.²
- **Funding Level Indexed to Facility Condition.** Indexes roadway and bridge conditions to a funding level to indicate progress toward transportation condition goal.
- **Program Delivery Costs.** Establishes measures for program expenditures in the areas of planning, design and engineering, construction, construction supervision, and program administrative costs.



Photo

George Washington Memorial Parkway under construction. NPS photo.

¹ FCI: Good=0-0.10; Fair=0.11-0.15; Poor>0.15; Replace>0.5.

² PCR: Good=85-100; Fair=60-85; Poor=0-60; 60 is considered failed pavement.



The Economic Importance of NPS

The National Park System provides Americans and foreign visitors with touring and recreation opportunities that underpin economic growth for many small communities and the nation. Tourism, excluding air travel, represents 4% of the U.S. economy. Visitor spending in our National Parks and gateway communities accounts for 3% of the entire tourism industry.

Total Economic Impacts:

- Visitor spending creates \$5.6 billion in personal income¹ and 246,000 local jobs.
- NPS and recreation at National Parks accounted for more than 305,000 jobs in 2005.
- In 2005, there were 273 million visitors to National Parks², and visitation is expected to continue to rise.

The pie chart below shows the national spending patterns of visitors to NPS Parks.

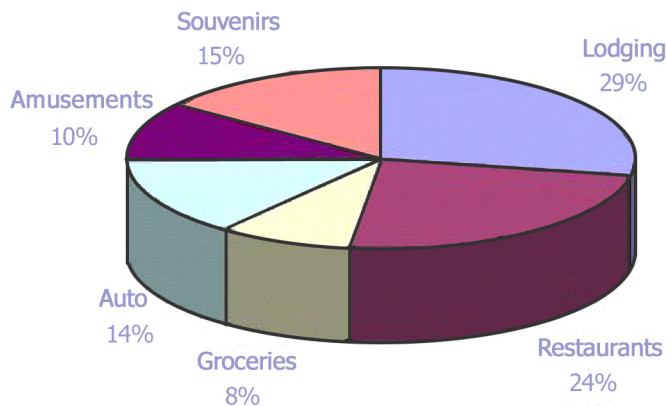


Figure 1 National Park Visitor Spending Shares: National Average

Touring and recreation at National Parks supports almost 49,000 indirect jobs, and contributes \$1.3 billion in personal income to surrounding communities.³

¹ Wages and other forms of compensation.

² Department of the Interior Quick Facts: <http://mits.doi.gov/quickfacts/searcher.cfm>.

³ "National Park Spending and Payroll Impacts Fiscal Year 2005" Daniel Stynes August 2006.



In 2005, visitors spent \$10.4 billion within National Parks and gateway communities, of which only \$1 billion represents local visitor spending. This results in \$9.4 billion in net-new spending. The four most impacted industry sectors were lodging, restaurants, retail trade and amusements. Visitor spending supports over 50,000 jobs in the lodging and restaurant sectors and over 25,000 in retail trade and amusements.¹

The total number of jobs created and sustained through NPS rehabilitation and construction during the SAFETEA-LU funding period is 5,100.²

The Producer Price Index for Highway & Street Construction (PPI), the Federal Government's index which tracks prices in the transportation construction community, has increased at a rate higher than ordinary price increases (i.e., inflation), especially since 2004. Driving those increases are international demand for materials, limited domestic supplies or localized material shortages, and higher fuel and asphalt prices.

Although funding sources have grown in recent reauthorizations, recent cost increases have offset the purchasing power of any increases. For example, in 2003 the NPS reconstructed a mile of road for \$1.8 million. Today, that same type of project would cost \$3.0 million. In the past year diesel fuel prices have risen 22%, while road and highway construction costs between 2005 and 2006 rose almost 12%.³ Costs of roadways are increasing at a rate greater than core U.S. inflation.



*In 2005, visitors
spent \$10.4 billion
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gateway
communities*

Photo

*Construction needs on Trail Ridge Road,
Rocky Mountain National Park. NPS photo.*

¹ "National Park Spending and Payroll Impacts Fiscal Year 2005" Daniel Stynes August 2006.

² Estimate was generated using Census Bureau's PPI series in conjunction with the seasonally adjusted compensation data. These were then applied to Nadri and Mamanea's 1991 estimates.

³ "The Cost Outlook for Construction."



Park Usage & Transportation

Number and Types of Parks

Park units are found in diverse locations, from remote areas to urban settings, and in all of the country's climatic zones. The 391 Park units cover more than 84 million acres (more than 3.5% of the nation's total area) and are located in every state except Delaware.

Our largest park, Wrangell-St. Elias in Alaska, is nearly the size of West Virginia, covering 13.2 million acres. On the other hand, many small historic park units, such as the Old Stone House in Washington, DC, are less than an acre in size. This adds to the challenge of construction, maintenance, and operation of these sites.

Park units are classified by location, physical characteristics, and recreational activities. Classifications include National Parks, Lakeshores, Parkways, Seashores, Preserves, Recreation Areas, Monuments, Scenic Rivers, Military Parks, Historic Sites, and Historic Parks.

Visitation

In 2006, national parks received more than 273 million recreational visitors – representing a slight increase in visits over previous years. NPS envisions visits to National Parks will continue to grow in the coming years, as members of the baby boom generation retire, giving them more time to travel. In addition, population increases along the coasts and in the West will place more Americans closer to large national parks such as Yosemite, Olympic, and Mount Rainier. Both Americans and international visitors will continue to take advantage of recreational and educational activities provided by our national parks.

As the number of visits increases, park roads will increasingly experience traffic congestion. The NPS has not been building new roads or adding

The 391 Park units cover more than 84 million acres



Photos

Left: Barriers along the Skyline Drive, Shenandoah National Park. Photo by Scott Wolfert.

Right: Embankment treatment used in Sequoia and Kings Canyon National Parks. NPS photo.



lanes to alleviate congestion. Instead, it has been pursuing alternative transportation systems, which frequently include high occupancy vehicles (shuttle buses, trolleys, ferries) as a means to add capacity, alleviate congestion, improve the visitor experience, and protect our resources.

NPS Transportation System Characteristics

The NPS transportation system provides essential public access to parks, provides visitor mobility within parks, and allows the staff to conduct park operations. This transportation system includes:

- 5,450 miles of paved roads (of which 1,100 miles are parkways)
- 4,100 miles of unpaved roads
- 1,414 bridges
- 63 tunnels
- 110 alternative transportation systems in 81 park units
- 18,600 miles of trails, of which 690 miles (4%) are paved

Roads, Parkways, and Bridges

Park roads, parkways, and bridges are the NPS transportation system's backbone and enable visitors to tour by automobile, bus, bike, or trolley. Park roads frequently link to other modes of transportation – water ferries, trains, and trails – both in and outside the parks. When integrated with the transportation networks of gateway communities, the parks' transportation services provide visitors with seamless access, and frequently improve the mobility and quality of life of local residents.

Alternative Transportation Systems

Alternative transportation systems (ATS) help parks minimize resource impacts where traffic volume on existing roadway infrastructure has reached or is over capacity.

Alternative transportation systems are important to the NPS and its visitors for a number of reasons that support the mission of the agency. Alternative transportation systems contribute to preserving resources, including improvements to air quality, soundscapes, reduced wildlife/auto collisions, and by demonstrating leadership in using alternative transportation to reduce fossil fuel consumption and contributions to greenhouse gas emissions.

Park roads, parkways, and bridges are the transportation system's backbone



The NPS currently has 110 alternative transportation systems in 81 park units nationwide. The systems are provided through contractual, concession and/or partnership agreements. Sixteen are owned and operated by the NPS, 72 are contracted by the NPS through concession and/or service contracts, and 22 are provided under cooperative agreements with public or private partners.

Across the National Park Service, new ATS vehicles put into service are “rolling ambassadors,” exemplifying the NPS commitment to improving facility and infrastructure conditions while providing prominent and highly visible examples of resource preservation and sound conservation.

- 42 systems are buses (over 85% of this fleet is comprised of alternative fueled vehicles including propane, compressed natural gas, and diesel/electric hybrid vehicles)
- 37 systems are water-based (ferry boats, canal boats, small tour boats)
- 5 systems are rail (historic trolleys and scenic railroads)
- 26 systems are other small vans or specialty vehicles

*The NPS
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transportation
systems in
81 park units
nationwide*



Photo

*Alternative transportation: Shuttle bus in
Zion National Park. NPS photo.*



The alternative fueled vehicles also provide excellent opportunities for imparting interpretive messages about alternative transportation and clean fuels as part of the NPS mission and ethic. In Yosemite Valley, a recent survey of visitors highlighted that one of the major reasons people choose to ride the shuttles in the Valley is that they feel that, as part of their visit, they are direct participants in furthering the NPS mission and ethic of resource protection.

In visitor surveys in Zion, Acadia and Denali National Parks, over 90% of visitors consistently indicate that they support alternative transportation systems in national parks and would ride other systems based upon their experiences in those parks.

Trails

Of the 18,600 miles of trails throughout all units of the National Park System, most are natural surfaced trails in backcountry settings. However, front country trails are also an important element of the national park's transportation system, often connecting built facilities to popular overlooks, other tourist destinations, and local communities.

In addition, front country trails can provide an alternative to private motor vehicle access to many park units. Almost 700 miles of NPS front-country trails are paved, helping to disperse users and allowing visitors who bicycle or walk to have a more first-hand park experience.

Funding History

Prior to the passage of the Surface Transportation Assistance Act in 1982, all NPS infrastructure projects – from transportation projects to sewage treatment plants – competed for limited funding with many more needs than available funding, leading to deterioration in transportation systems.

With the passage of the Surface Transportation Assistance Act in 1982, the Federal Highway Trust Fund became the principal source of funding for NPS roads and bridges through the Federal Lands Highway Program, Park Roads and Parkways Program (PRPP). This change led to stabilization and some reversal of the impact on the system from many years of neglect.

However, during the time frame covered by the Surface Transportation and Uniform Relocation Assistance Act of 1987 and the Intermodal Surface Transportation Efficiency Act of 1991, PRPP funding declined, lead-

Of the 18,600 miles of NPS trails, most are natural surfaced trails in backcountry settings

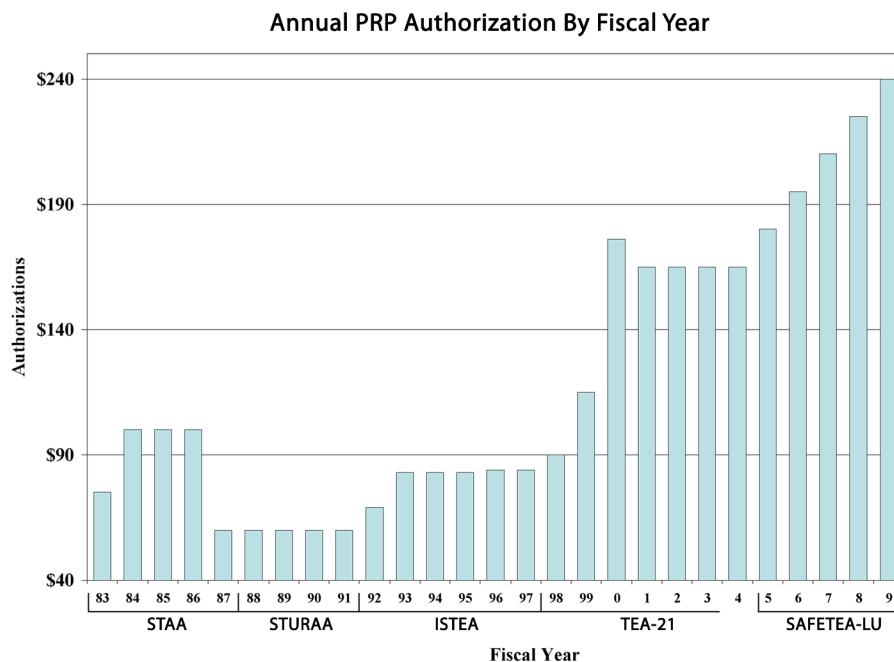


ing to system deterioration of between 1% and 3% per year. As funding increased again under the Transportation Equity Act for the 21st Century (TEA-21), the number of poor or failed roads dropped (see chart below).

Funding under the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) is not sufficient to stabilize road conditions, complete congressionally mandated parkways, significantly expand alternative transportation systems, and restore trails.

Additionally, the PRPP has not fully realized amounts authorized by SAFETEA-LU due to the obligation ceiling on highway trust fund spending under Title 23, Section 1102(f). The result has been the loss of \$20 million of PRPP funds each year. This equates to \$100 million over the life of SAFETEA-LU, and the deferral of 20 to 30 construction projects.

*Funding under
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Management Systems

Assets & Funding Venues

A recent snapshot of National Park Service facility conditions from the NPS Facility Management Software System (FMSS) showed that the NPS has an identified deferred maintenance backlog of approximately \$8.4 billion on its existing asset portfolio (buildings, housing, utilities, and roads).

Over 49% of that backlog, or approximately \$4.5 billion, consists primarily of roads and trails. With nearly half of the NPS maintenance backlog being attributed to transportation-related assets, the NPS is critically concerned with any proposed additional capital investments that have the potential to affect progress toward reducing the current maintenance backlog.

Title 23 USC and Title 49 USC provide significant support to restoring, building, and reshaping the NPS transportation system. The NPS also receives funding from the Federal Lands Highway Program, Public Lands Discretionary Program, Scenic Byways Program, Transportation Enhancement Program, and Ferry Boat Discretionary Program. The Emergency Relief for Federally Owned Roads (ERFO) Program is key to meeting emergency needs following a disaster. In addition, the NPS repair and rehabilitation line-item construction and fee programs help address the significant backlog of needs.

In FY06, \$7 million was collected in transportation fees in 11 park units for operations and maintenance of ATS systems. Operation of transit systems are expensive. For example, the Zion National Park transit system which served 2.8 million passengers in 2006 operates 30 buses with 21 trailer units that require drivers, maintenance facility and fueling station at an annual cost of \$2.6 million.

Currently, for most NPS transit systems there are no stable and reliable sources of funding for the operations increasing the financial risks and stability of these systems. Unfortunately these systems often cutback on services or take from other park programs to make annual ends meet.

A designated funding stream would ensure ongoing systems operate efficiently and effectively without disruption of other services. Depending upon seasonal operations, NPS and its contracted/partnership systems comprise well over 300 vehicles operating in and around national park units and neighboring communities. With partner contributions in operations and maintenance, it's estimated that over \$35 million per year in operating and maintenance costs are expended in support of the NPS and

The NPS has an identified deferred maintenance backlog of approximately \$8.4 billion



its partner's system operations. All these funding venues help address a national responsibility.

Asset Management and Cost of Ownership

Maintaining the NPS transportation system is like owning a car or a house. Preventive maintenance is a far more cost-effective strategy, since it will typically extend the life of an asset.

A National Research Council 1990 study¹ concluded that an appropriate budget allocation for infrastructure maintenance and repair “will typically be in the range of 2% to 4% of the current replacement value.” The replacement value of the NPS roads and bridges is some \$20 billion. Even at the current funding level of \$203 million, the average annual funding under SAFETEA-LU, the NPS is spending less than 2% annually.

The result is a steady degradation of the NPS infrastructure (roads, bridges, alternative transportation systems and trails) and a sizeable backlog of deferred projects.

Pavements and Bridges

With 5,500 miles of paved roads and 1415 bridges, the NPS pavement and bridge network represents a sizeable portion of both the Service's total asset base and its deferred maintenance obligations. The replacement value of this transportation infrastructure is more than \$20 billion; its deferred maintenance is estimated at just under \$4.5 billion. In accordance with Title 23 CFR, the NPS in conjunction with the Federal Highway Administration has completed initial implementation of a Pavement Management System (PMS) and a Bridge Management System (BMS) and has the ability to computer model paved road and bridge networks.

In 2004, the estimated fatality rate for the park system was 1.89 fatalities per 100 million vehicle miles



Photos

Left: Bridge ceiling failure, Baltimore Washington Parkway, Aug. 24, 2007. NPS photo.

Right: Trail and elevated viewpoint in Everglades National Park. NPS photo.

¹ National Research Council, *Committing to the Cost of Ownership: The Maintenance and Repair of Public Buildings*.



The NPS is committed to practicing sound asset management in the stewardship of its transportation assets. PMS and BMS provide state of the art tools that allow the NPS to align its budget requests with performance in terms of industry standard performance metrics. To this end, the NPS intends to use these management systems for the purposes of budget development, allocation of resources, and development of projects to support our performance goals.

Safety

The NPS is committed to improving the safety of its roadways and parkways. From 2001 to 2005, park roadways and parking lots experienced 29,642 reported crashes while hosting 1.8 billion recreational and non-recreational visits. In that same period, accident fatalities, personal injuries and property damage incurred by visitors while traveling in the nation's parks cost \$534 million.¹

During the period 2001 through 2005, one person was killed or injured on park roadways every 4.5 hours. In 2004, based on available data, the estimated fatality rate for the park system was 1.89 fatalities per 100 million vehicle miles compared to the national US rate of 1.5 fatalities per 100 million vehicle miles traveled. If NPS were compared to states for fatality crash rates it would rank 13th out of the 50 states.

The NPS is working to implement a data-driven and systematic approach to safety management in the parks, maximizing the efficiency of scarce financial resources. Category I and the establishment of Category V will enable the Park Service to attain its Centennial Challenge goal of reducing accidents by 20% over the coming ten years, by employing a variety of safety measures especially those that are low cost in nature. Achieving this reduction would reduce the fatality rate to close to the US national average. These strategies are focused on reducing lane departures (run-off-the-road crashes) and head-on collisions, increasing intersection safety, protecting pedestrians, and reducing collisions with animals.

Congestion

Just as traffic congestion continues to increase nationally, it is likely more visitors will experience traffic delays at National Parks. Traffic congestion in the national parks varies by context and timing. Some parks situated

Increasing safety funding will enable the Park Service to reduce accidents by 20% over the coming 10 years

If NPS were compared to states for fatality crash rates it would rank 13th out of the 50 states

¹ Based on economic costs from the National Highway Traffic Safety Administration (NHTSA) updated to the year 2006 using the Consumer Price Index (CPI). A fatality costs \$1,144,048, an injury costs \$20,844, and property damage only costs \$2,964 per crash in 2006 dollars. Accident counts are from the STARS database.

near large, growing urban areas experience more traffic as these areas grow. For example, a recent FHWA study¹ indicated that by 2020 the Eastern United States would have 11 parks within five miles of 17 counties growing faster than 20% annually. Increased suburban development leads to an increase in commuter traffic through parks during rush periods or for other non-park visit purposes. Current visitation numbers indicate that for some parks, such as Rock Creek in Washington, DC, the ratio on non-recreation to recreation visitors is as high as 6 to 1.

In parks not located near large urban areas, recurring congestion can occur for other reasons. Some parks experience significant congestion at key sites, such as entry stations or parking lots, during periods of high park visitation. For example, at Grand Canyon National Park South Rim entrance, the average time to process a vehicle is 32 seconds, resulting in a capacity of 112 vehicles per hour per lane². It is estimated that there are 515 hours per year when the demand exceeds the capacity of this entrance station.



Photo

Park visitors waiting at the Grand Canyon National Park South Rim entrance station. NPS photo.

¹ NPS Congestion Management Pilot Study, FHWA EFLHD Planning Section April, 2007.

² Based on economic costs from the National Highway Traffic Safety Administration (NHTSA) updated to the year 2006 using the Consumer Price Index (CPI). A fatality costs \$1,144,048, an injury costs \$20,844, and property damage only costs \$2,964 per crash in 2006 dollars. Accident counts are from the STARS database.



Given the mission of the National Park Service to preserve and protect natural and cultural resources, adding additional road capacity is not usually an option. Another response to congestion has been to deploy environmentally friendly new technologies. For example, at Acadia National Park, the Island Explorer Bus incorporates state-of-the-art ITS tools to facilitate visitor mobility and relieve congested roads. Zion and Yosemite National Parks also use shuttles, among other parks.

To better manage these varying contexts in which congestion is experienced several things are needed. Traffic studies need to be conducted at specific sites to collect road levels of service and time and delay information. Appropriate communications equipment and ITS tools need to be tested and employed in select parks. Congestion mitigation projects need to be developed and piloted in order to refine additional tools for lessening traffic congestion and enhancing the visitor experience.

Funds under Category V will enable the Park Service to collect traffic data needed, analyze the information, pilot fixes, and monitor improvements at select congested locations, and measure the performance/effectiveness of projects. This will also enable the installation of communications equipment and the deployment of ITS tools.

Reduction in Air, Noise, and Visual Pollution

Increased visitation at NPS units means escalating amounts of pollution emitted by cars. The NPS has taken positive steps to alleviate this problem by implementing alternative transportation systems in the form of bus shuttles at many of its parks. Many successes are evident not only in establishing shuttle systems, but also in upgrading bus fleets to achieve greater reductions.

- At Yosemite National Park, hybrid buses were chosen to replace diesel buses. The valley shuttle serves 1,050 passengers per hour, 15 hours per day, year-round. The NPS estimates that particulate matter (PM), hydrocarbon (HC), and carbon monoxide (CO) emissions have been cut by 90%, along with a 60% reduction in nitrogen-oxide emissions, while fuel efficiency has increased anywhere from 20% to 55%.
- Noise pollution created by diesel bus acceleration and deceleration has been reduced by as much as 70% with hybrid buses, thereby allowing the visitors to more fully experience all of the sights and sounds of nature.

*At Yosemite, the
valley shuttle
serves 1,050
passengers per
hour, 15 hours per
day, year-round*



- Following the introduction of shuttle bus service, noise near roadways was reduced by 9.6 decibels in Zion National Park and 6.3 decibels in Acadia National Park. This is comparable to the reduction that would result from building a 12- to 15-foot-tall noise barrier along the roads.
- The Island Explorer shuttle at Acadia National Park transports approximately 200,000 visitors annually on its clean fuel buses. Acadia is located in Hancock County, Maine, which was re-designated by the EPA from non-attainment to attainment status with respect to the 8-hour ozone standard in January 2007. Since 1999, Island Explorer buses have eliminated more than 685,000 automobile trips and prevented 6,444 tons of greenhouse gases.
- Categories III and IV will support additional efforts to build other successful systems.

The number of National Park units located in regional air quality non-attainment areas has nearly doubled in just the last five years; the NPS is placing a greater emphasis on expanding alternative transportation systems that will help keep our parks cleaner, quieter, and more sustainable.



NPS Transportation System Needs

NPS has identified five strategic focus areas for the PRP Program that function as program categories for managing future funding. The following discussion uses these categories to:

- Describe the condition of the Park Service's transportation system;
- Identify accomplishments since the passage of SAFETEA-LU;
- Identify the funding needed to achieve the NPS transportation mission.

NPS strategic focus areas and categories are:

- Category I: Restore the Road and Bridge System;
- Category II: Build Unfinished Parkways;
- Category III: Plan and Implement Alternative Transportation Systems;
- Category IV: Restore Park Trails;
- Category V: Plan and Deploy Intelligent Transportation Systems (ITS)

SAFETEA-LU investments focused on only the first three categories. Although park trail needs have been addressed as part of programming for these three categories, the NPS recommends establishing a separate trail category to emphasize eliminating the front country backlog of trail restoration and development projects.

In addition, ITS projects are eligible under existing categories, but a separate funding area would promote partnering opportunities for alleviating congestion and improving traffic and transit operations without detracting from other NPS efforts to aggressively reduce the existing backlog of road and bridge needs.

The NPS recommends establishing a separate trail category to emphasize eliminating the backlog of trail restoration and development projects



Photos

Left: Parking area and trail to a Cape Cod National Seashore visitor center. NPS photo.

Right: Safety is always a primary issue. During the period 2001 through 2005, one person was killed or injured on park roadways every 4.5 hours. NPS photo.

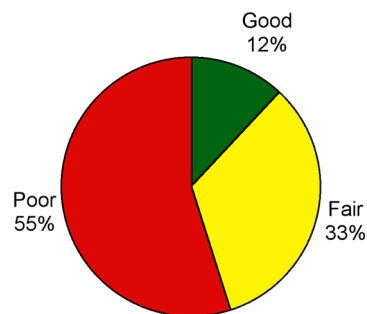


Category I: Restore the Road and Bridge System

Road Pavement Conditions. FHWA studies have concluded that 90%¹ of park roads are in either “poor” or “fair” condition requiring repair, resurfacing, rehabilitation, or reconstruction. FHWA’s studies recommend that the NPS use life cycle maintenance treatments to improve and sustain the overall condition of the system to “good.” A road system in good condition provides the public with safe and efficient transportation. Professionals advocate that the system be sustained in “good” condition as an economically sound Asset Management strategy, thereby protecting and extending the life of Park Service facilities. While funding under SAFETEA-LU was increased it has not stabilized conditions in the face of increasing construction costs and higher rates of inflation.

Ninety percent of park roads are in either “poor” or “fair” condition requiring repair, resurfacing, rehabilitation or reconstruction

Park Roadway Pavement Conditions
Modeled to represent the end of FY2009



Roadway Accomplishments. The program has achieved the annual rehabilitation of approximately 2% of the park roads. These improvements have contributed to enhanced safety and visitor experience.

Pavement Options. The table below lists the options for improving roadway pavement conditions over the six-year period following the reauthorization of SAFETEA-LU. For each option, annual and six-year funding levels are listed, in addition to performance measures of the overall condition by the end of the six years, and the percentage of poor, fair, and good miles of pavement.

¹ Pavement Data Collected by FHWA during Cycle 3 between 5/12/01 and 8/20/04. This data has been modeled by FHWA to represent the condition of the network as of March 31st, 2007.



Pavement Options	Annual Funding Level (\$ in millions)*	Six-Year Total Funding (\$ in millions through 2015)	Performance Measures At end of 2015			Condition Rating Distribution in 2015 (percent of miles)		
			FCI*	PCR**	DM	Poor %	Fair %	Good %
1	644	3864	0.09	85.0	\$2.44B	9%	22%	69%
2	238	1428	0.22	57.4	\$6.11B	52%	21%	27%
3	0	0	0.34	38.9	\$9.38B	88%	12%	0%
Current	203***	1219	0.23	57.4	\$4.95B	55%	33%	12%

* FCI (Facility Condition Index): Good 0 - 0.08; Fair 0.09 - 0.20; Poor >0.20. These categories have been developed by FHWA.

** PCR (Pavement Condition Rating): Good 85 - 100; Fair 61 - 84; Poor ≤ 60. 60 is considered failed pavement.

*** SAFETEA-LU, Category I includes roads and bridges; actual funding for roads versus bridges varies from year to year.

Pavement Needs. The Federal Highway Administration (FHWA) analyzed several options using professional standards and industry procedures. The FHWA estimates NPS pavement replacement cost to be approximately \$20 billion. An annual funding level of \$644 million

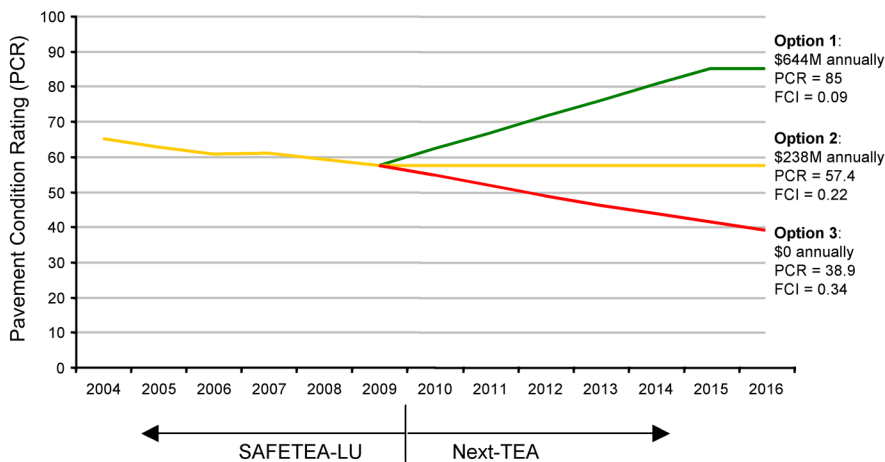
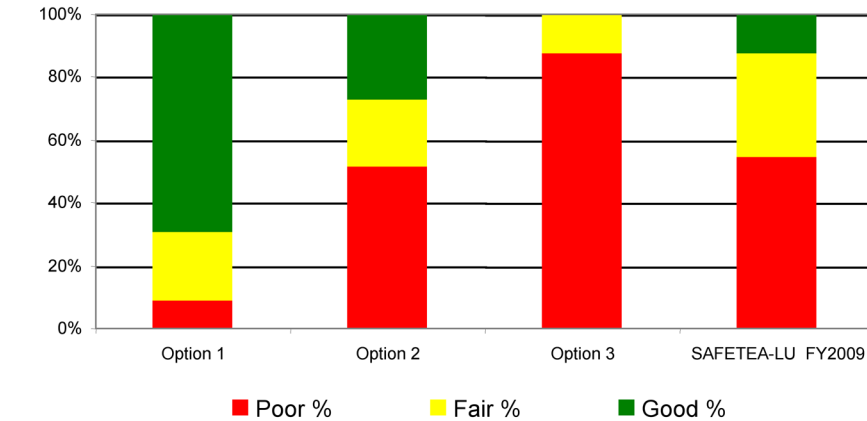
The FHWA estimates NPS pavement replacement cost to be approximately \$20 billion



Photo

Bridge and roadway in Colonial National Historical Park. NPS photo.

(Option One) provides the optimal system-wide Facility Condition Index (FCI) Pavement Condition Rating (PCR), and would allow the network to be maintained at a least life-cycle cost through preventive maintenance and capital improvement over an optimal 30-year horizon.



The bar chart and the line graph (above) demonstrate the expected year 2015 condition of the NPS paved road network under different scenarios. Option One not only results in a PCR of 85 and an FCI of 0.09, but also provides a pavement network with approximately 70% in good condition.



Option Two, which maintains the network in its modeled 2009 condition, allows only 27% of pavements to be in good condition.

Bridge Conditions. Approximately two percent¹ – or 28 – of NPS bridges are considered “structurally deficient.” The NPS and the FHWA have closed those structurally deficient bridges that show any hazard to Park visitors and employees. Other deficient bridges have been restricted from use by certain types of vehicles (e.g., concessionaire delivery trucks). Each of these deficient bridges is monitored closely and have been identified and scheduled for full rehabilitation or replacement.

Bridge Accomplishments. Over 98 percent of the NPS bridges are structurally sound. Approximately six bridges have been rehabilitated each year.

Bridge Options. The table below lists the options for improving bridge conditions over the six-year period following SAFETEA-LU reauthorization. For each option, annual and six-year (through 2015) funding levels are listed, in addition to the FCI performance measure of their overall condition by the end of six years.

Bridge Options	Annual Funding Levels (\$s in millions)	6 Year Total Funding (\$s in millions)	Performance Measure FCI in 2015*	Number of Deficient Bridges in 2015
1	36	216	0.080	0
2	33	198	0.077	26
3	27	162	0.091	27
4	0	0	0.540	57

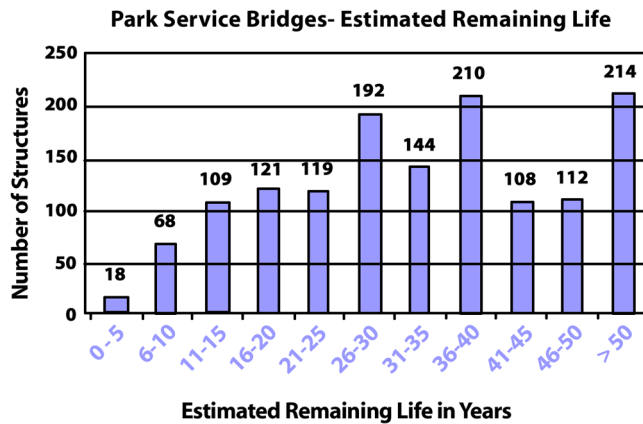
*FCI (Facility Condition Index) Good 0-0.08; Fair 0.09-0.20; Poor ≥ 0.20 ; These categories have been developed by FHWA.

Bridge Needs. The overall FCI for bridges is “good.” However, 28 bridges are “structurally deficient” and several others need to be rehabilitated. The current funding level under SAFETEA-LU has been between \$15 and \$25 million annually. FHWA estimates a backlog of needs of \$161 million, and an infrastructure replacement cost of approximately \$2.6 billion. If funding were committed at \$36 million a year (Option One in the table

¹ FHWA bridge data collected between 2005-2007.



above), the NPS would be able to eliminate its structurally deficient bridge population, and continue to maintain a network in “good” condition.



28 bridges are “structurally deficient” and several others need to be rehabilitated

The chart above illustrates the estimated remaining life of the structures owned and operated by the NPS. There will be a significant increase in the number of bridges in need of rehabilitation or reconstruction over the coming decades.



Photo

Fitzwater Bridge over canal, Cuyahoga Valley National Park. NPS photo.



Category II: Build Unfinished Parkways

Parkways

The U.S. Congress has mandated funding for six parkways which include Chickamauga-Chattanooga Route 27 Bypass, the Baltimore-Washington Parkway, Cumberland Gap National Historic Park Tunnel, George Washington Memorial Parkway, Natchez Trace Parkway and the Foothills Parkway. All have been completed except the later two which are in various stages of final development.

Parkway Accomplishments

The parkway portion of the Natchez Trace Parkway was completed in 2006 after 67 years of construction in Tennessee, Alabama and Mississippi. The Natchez Trace Parkway is considered one of the most scenic and beautifully designed parkways in America and is now designated as an “All American Road” scenic byway. Under SAFETEA-LU, continued work will be accomplished for Section “E” of the Foothills Parkway. Furthermore, three construction projects will be completed on the Natchez Trace multi-use trail.

Parkway Options

- Approximately \$98 million (for approximately 46 miles) is needed to complete three sections (Jackson, Natchez and Tupelo) of the multi-use trail on the Natchez Trace Parkway.
- Approximately \$202 million is needed to complete Sections E (9.7 miles) and F (6.4 miles) of the Foot Hills Parkway and begin Section B (14.1 miles).

Parkway Needs

The NPS recommends spending \$50 million a year (Option Two) to complete the Natchez Trace Parkway’s multi-use trail in three urban areas and complete the next logical segments of the Foothills Parkway. This will extend the parkway an additional 30 miles for the public’s enjoyment. Congressional authorization for the Foothills Parkway started in 1944.

Parkway Options	Annual Funding Levels (\$M)	6-Year Total Funding (through 2015)	Performance Measures/Goals			
			Completion Period (Years)	Remaining Cost at the End of 6 Years (\$M)	Natchez Trace	Foothills
1	\$25M	\$150M	12	\$150	50%	50%
2	\$50M	\$300M	6	0	100%	100%



Category III: Plan and Implement Alternative Transportation Systems

Alternative Transportation System (ATS) Conditions

The NPS has 110 alternative transportation systems in 81 park units; 15 of these alternative transportation systems represent the only means of public access (primarily watercraft to remote waterways/islands).

In 2001, the Federal Highway and Federal Transit Administration's released a report¹ identifying an NPS ATS need for \$60 million per year over 10 years (not adjusted for inflation). The study included longer term capital and operating cost increases substantially to \$95 million per year based on a greater number of systems anticipated to be in operation. The study identified the need for supplemental operating support to offset system shortfalls impacting operational and other funding sources.

The following graph illustrates sources of revenue over a five-year period based on a sample of 18 parks providing alternative transportation systems. Of concern is the use of national park pass funds and park base funds which average about \$10 million per year. These funds could

*The NPS has
110 alternative
transportation
systems in 81
park units*



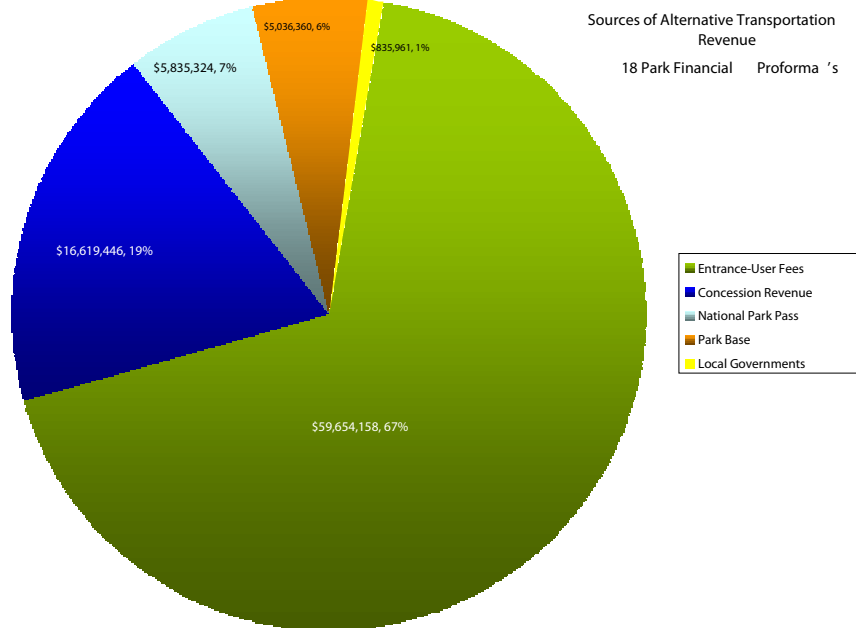
Photo

Shuttle bus in Yosemite National Park.
NPS photo.

¹ Federal Lands Alternative Transportation Systems Study, August 2001.



otherwise be used for deferred maintenance and park services such as interpretation. Therefore, Option Three includes as a recommendation the inclusion of operating subsidies to offset national park pass and park base funds.



In 2006, the NPS prepared a constrained multi-year plan identifying over \$185 million (not adjusted for inflation) in alternative transportation capital and planning needs between 2006 and 2010.

Both the 2001 study and 2006 plan identified a range of projects including vehicle purchase and replacement, water fleet purchase and replacement, maintenance and fueling facilities, shelters and docks, and multi modal transportation planning and outreach to State and local communities.

Due to higher priority given to rebuilding the park road systems, the NPS has on average spent only \$8.8 million per year for the last five years on ATS. Accordingly, the Park Service needs \$15 to \$60 million annually over six years to implement a limited, moderate, or aggressive ATS program.



Alternative Transportation Program Accomplishments

Since the establishment of the NPS Alternative Transportation Program in 1998, the NPS has obligated approximately \$72 million of NPS funds (\$8 million per year average) toward more than 215 alternative transportation projects and programmatic initiatives in the NPS. Over \$22 million has been obligated for 132 projects/phases in the planning and design of systems, and \$39 million for 83 implementation and construction projects. These funds, combined with programmatic activities, have resulted in:

- Establishment of 13 new alternative transportation systems, 8 of which are partnerships serving the NPS and local/regional communities and operated by NPS partners
- Capital improvements to 24 existing NPS alternative transportation systems
- The purchase and lease of 78 alternative fueled vehicles to replace aging vehicles, expand existing systems, and implement new systems
- Assistance in developing a “next generation” snow-track shuttle for Yellowstone National Park
- Development of NPS policy and guidance including:
 - NPS Vehicle Procurement Guide
 - NPS Alternative Transportation System Design Guidelines
 - Prototype web-based NPS Travel Planner for parks in the Northeast Region
 - Financial Pro-Forma tool for estimating and reporting financial conditions associated with NPS alternative transportation systems

Alternative Transportation Options

The currently identified combined average annual needs for NPS-funded alternative transportation systems, including planning, capital and supplemental operating expenses, are in excess of \$50 million per year. Adjusted for inflation, the average annual needs are nearly \$60 million per year. This does not include a possible offset by the new Alternative Transportation in the Parks and Public Lands program (see discussion page 41) which may or not be reauthorized. The NPS has received approximately \$6 million per year from this new program. If this new program continues past 2009, then any offset of the \$60 million will

The NPS has obligated approximately \$72 million ...toward more than 215 alternative transportation projects and programmatic initiatives



be applied to other categories. In addition, Option Three includes as a recommendation the inclusion of operating subsidies to offset national park pass and park base funds.

ATS Options	Annual Funding Levels (\$M)	6-Year Total Funding	Possible Funding Activities				
			Planning & Design	Rehab & Expand Existing Systems	Deploy New Systems	System Maintenance	System Operations
1	15	90	YES	LIMITED	LIMITED	YES	NO
2	30	180	YES	YES	SOME	YES	SOME
3	60	360	YES	YES	YES	YES	YES
4	0	0	NO	NO	NO	NO	NO

Alternative Transportation Needs

NPS recommends funding at \$60 million annually (Option Three) to plan, design, operate, maintain, expand and build the agency's alternative transportation system needs. This would enable parks to ensure that current and planned systems would be viable and meet the needs of future visitation levels, including the operability and ongoing contributions toward partnership investments. Combined with the Park Roads and Parkways Program, funding at this level (in part from Category III and in part from the Alternative Transportation in Parks and Public Lands Program) would accomplish deferred transit maintenance needs and make possible a more complete and integrated approach to visitor access, mobility, enjoyment, and resource preservation for transportation in the NPS.



Photo

Alternative transportation: the shuttle bus in Zion National Park. NPS photo.



Alternative Transportation in Parks and Public Lands Program

The Alternative Transportation in Parks and Public Lands (ATPPL) program funds capital and planning expenses for alternative transportation systems in national parks and public lands. ATPPL is a new program authorized by SAFETEA-LU. The ATPPL program was created in response to traffic congestion in and around national parks and other federal land areas. Congress recognized the need for a dedicated source of funding based on the Federal Lands Alternative Transportation Systems Study (August 2001), which identified the need for \$60 million annually for the National Parks. However, only \$97 million was authorized over a 5-year period to be competitively divided among four federal agencies. Also eligible to apply are State, tribal, and local governmental authorities with jurisdiction over land in the vicinity of federal lands.

The ATPPL provides grant funding on a year-to-year basis. Each agency is assumed to have a core transit program with a multi-year project list to coordinate with local transportation officials. ATPPL does not support program development and administration, system level planning, unforeseeable cost changes, emergencies, and strategic initiatives. Each agency must develop a talent pool of professionals to deliver construction projects starting with planning, design, project award, and operation. Also, the ATPPL does not cover on-going transit system operations and maintenance.

ATPPL may fund one phase of a project, without any guarantee that other phases of the same project will be awarded future ATPPL funding. ATPPL favors new system starts and larger systems over smaller projects designed to improve existing system deficiencies and operational effectiveness. Because of the limited funding and program priorities, ATPPL is essentially a demonstration program funding.

Therefore, PRPP Category III is required to conduct comprehensive transportation planning, alternative transportation program development and administration, respond to unforeseeable costs, ensure that all phases of a project are funded, and support high priority projects beyond those funded by ATPPL.



Category IV: Restore Park Trails

Trail Conditions

In 1988, 75% of park trails were in good or fair condition; now, only 64% are so rated. While many trails have been improved, many more continue to deteriorate due to weathering and heavy use.¹

Trail Accomplishments

Each year, the NPS – often with help of partners and volunteers – improves and upgrades some trails. Most of the funding used to support these efforts comes from park resources or special grants. Increasingly parks are working with neighboring communities to build trail connections that improve quality of life and foster health benefits. In addition, they enhance connectivity between modes and provide alternative transportation.

Trail Options

The changing demographics, a growing emphasis on physical activity, and the coming Centennial will all contribute to increased demand for and use of park trails. The table below identifies options for PRPP funding for park trails over the six-year period following SAFETEA-LU. For each option, annual and six-year (through 2015) funding levels are listed, in addition

The condition of park trails has declined since the last Servicewide assessment in 1988



Photo

Trail in Acadia National Park. NPS photo.

¹ U.S. Department of the Interior, National Park Service, Trails Condition Report, February 2, 1988.



Trail Options	Annual Funding Levels (\$s in millions)	6 Year Total Funding (\$s in millions through 2009)	Possible Funding Activities		
			Planning	Rehabilitation	New Capital Improvements
1	5	30	6%	94%	0
2	10	60	6%	89%	5%
3	15	90	6%	88%	12%

Intelligent Transportation Systems (ITS) have gained widespread use nationally

to estimating the percentage funding breakdown for planning, rehabilitating, and building park trails.

Trail Needs

To upgrade the 1,500 miles of seriously deficient trails – at an average cost of \$10,000 per mile – would cost \$15 million; improving the 5,200 miles of trail rated poor to the level of fair or good – at an average cost of \$5,000 per mile – would cost \$26 million. NPS recommends spending \$15 million annually for improving trails (Option Three), providing trail connections to local communities, establishing a program to provide a steady stream of repair, rehabilitation and reconstruction funding to care for trails throughout the System, and to prepare for the Centennial.

Category V: Plan and Deploy Intelligent Transportation Systems (ITS)

ITS Status and Outlook

Intelligent Transportation Systems (ITS) have gained widespread use nationally, improving the safety and efficiency of travel. About half of the estimated 150 million annual NPS web site visitors seek travel and trip planning information. Several parks that have roads subject to winter closures use web sites to alert visitors to road conditions. Park information radio systems have been used for decades to provide visitors with up-to-date information about the status of park attractions, parking, road construction, and general roadway information.

Electronic entry and payment systems help alleviate traffic backups and congestion at park entrance stations. New technologies enhance the visitor experience and bring the NPS transportation system into the current century.

ITS Accomplishments

National park transportation managers have increasingly pursued ITS applications.

Accomplishments include:

- 1999-2003 Acadia Field Operational Test of ITS applications for national parks. This field test – conducted in cooperation with the FHWA and the Maine DOT – revealed that ITS yields benefits to visitors and parks alike. Eighty-six percent of visitors reported that ITS information helped relieve the stress or uncertainty of travel; 80% reported that the ITS electronic bus departure signs and stop announcement technologies made it easier to use the Island Explorer shuttle bus to get around. Importantly, ITS was a key motivating factor in visitor decisions to ride the shuttle rather than drive their cars.
- A 2005 baseline inventory of ITS in national parks revealed that 59 parks in 20 states were involved in needs assessment, planning, deployment, or ITS operation.
- Data gathered during 2005 and 2006 at Golden Gate National Recreation Area indicates that parking information provided via ITS signs to visitors on U.S. Highway 101 en-route to Muir Woods can prompt up to a four-fold increase in use of the remote park-and-ride shuttle bus when parking areas are full.
- ITS is playing a prominent role in efforts to mitigate traffic congestion and travel delay at Glacier National Park during the planned eight-year reconstruction of the Going-to-the-Sun Road. Construction



Photo

Advisory sign in Great Smoky Mountain National Park. Photo by Frank Corrado, FHWA.



- mitigation plans call for a 20% reduction in peak period vehicular traffic on the road to ensure that visitors transiting the road will not experience more than 30 minutes of delay.

ITS Options

The table below lists a range of options for ITS planning and deployment over the next authorization period. The cost of ITS at national parks can vary widely depending on the range of ITS services and the size of the park. However, based on the fairly robust ITS deployments at Acadia and Glacier National Parks, \$2 million is a rough average cost estimate for ITS in rural parks. System operational costs are included with the ITS options. The Park Service is in the process of identifying a multi-year list of projects. While additional studies need to be completed and projects identified, historical costs support the need for \$20 million per year. Decrease in visitation during the short 3-5 month season would be devastating to the local business community.

ITS Options	Annual Funding Levels (\$s in millions)	6 Year Total Funding (\$s in millions through 2015)	Possible Funding Activities		
			Planning and Design	Rehabilitation	New Capital Improvements
1	5	30	60%	40%	0
2	15	90	15%	15%	70%
3	20	120	10%	15%	75% (incl. O&M)

ITS Needs

Deploying ITS along parkways, particularly in urban areas, would involve greater expense in the tens of millions of dollars range, but would offer significant benefits to park visitors and other travelers.

The availability of real-time information on delays from road construction, weather-related road conditions, and transit arrival times enable a more enjoyable visitor experience. NPS recommends spending \$20 million annually (Option Three) to plan, rehabilitate, expand, and deploy Intelligent Transportation Systems. This would enable the NPS to provide travel information and employ technologies to make travel to and within national parks more convenient and more safe while reducing adverse impacts on natural resources.



Reauthorization Recommendations

Funding Needs

Restoring, building and reshaping the NPS Transportation System in preparation for the Centennial will require \$825 million annually in Park Transportation Program funding, as follows:

- **Improving the Roads and Bridges System: \$644 million annually for roads and \$36 million annually for bridges -- \$680 million annually**
Prepare the National Park System transportation facilities for the 2016 Centennial by bringing all facilities up to an acceptable condition, as determined by the Facility Condition Index (FCI).
- **Building Unfinished Parkways: \$50 million annually**
Complete the next phase of the Natchez Trace and Foothills Parkways in time for the 2016 Centennial. The NPS can celebrate a century-long road construction program nearly completed by its Centennial in 2016.
- **Providing Alternative Transportation Services: \$60 million annually**
Expand alternative transportation options for park visitors to serve as a model for sustainable transportation. Complete a comprehensive, collaborative, integrated, multi-modal transportation plan for the NPS. Implement the plan in a prudent, logical, economical, and environmentally green approach. Build strong relationships with local, regional, and multi-regional transportation communities.
- **Restoring Park Trail Facilities: \$15 million annually**
Bring the NPS trail facilities up to an acceptable condition, meet Americans with Disabilities Act requirements, and ensure an appropriate level of service for all park visitors by the 2016 Centennial.
- **Planning and Deploying Intelligent Transportation Systems (ITS): \$20 million annually**
Use Intelligent Transportation Systems technologies to provide visitors with real-time information on delays from road construction, on weather-related road conditions, on transit arrival times, and on other aspects of travel to and within National Parks to make it more convenient and more safe while reducing adverse impacts on natural resources.



Legislative and Administrative Changes

In addition to funding, statutory changes are recommended to make it easier and more efficient to manage the National Park Transportation Program funding and fulfill the NPS transportation mission. The following changes are proposed:

Legislative Changes

- Exempt FLHP – including PRP and other programs – from the provisions of 23 USC 1102(f) that have resulted in a significant reduction of authorized funding levels by identifying it specifically as an exempt program under Title 23.
- Clarify that SAFETEA-LU Section 6002 is not intended to apply to FLH projects, reaffirm that PRPP projects do not require the approval of the Secretary of DOT, and reassert that the PRPP is a jointly administered program between the two Secretaries and does not provide for the USDOT to act unilaterally in adopting policies or procedures for the program.
- Require FHWA to provide a public notice detailing the basis for any and all Congressionally-authorized take-downs to be applied to the FLHP/PRPP similar to what FHWA currently provides for Federal Aid and Appalachian Development programs.
- Amend the procedures for Congressionally-authorized “High Priority Projects” with respect to the following: (a) Permit the States to request at the start of a fiscal year that FHWA provide the authorized funds directly to the Federal agencies rather than to the States; (b) Permit the NPS to charge project administration expenses of up to 1% of the project cost; and (c) Direct FHWA to work cooperatively with the Federal Land Management Agencies and States to develop and issue formal guidance to their respective staffs on program administration.
- Allow “point-of-obligation” on any PRPP project.
- Allow PLH-Discretionary proposals to be submitted directly to FHWA, as well as via a state transportation agency.

*Clarify that
SAFETEA-LU
Section 6002 is
not intended to
apply to FLH
projects*



- Provide Revenue Alignment Budget Authority (RABA) funding under 23 USC 110.
- Allow the Federal Highway Administration to execute borrow/loan agreements with participating Federal agencies to spend down all available Federal Lands Highway Program funds.

Administrative Changes

- Request that the Office of Management and Budget provide a blanket waiver or approval for NPS transportation surveys intended to track users, type of use, and user satisfaction with transportation facilities and services in NPS units.
- Clarify the SAFETEA-LU provisions related to stewardship and project oversight (amending 23 USC 106) are not intended to substantively alter the terms of the 1983 Agreement which provides for a mutual, cooperative and joint responsibility approach to project and project oversight.
- Clarify that the NPS can use Title 23 and Title 49 funds to help support the operation and maintenance of Alternative Transportation Systems.¹
- Establish a clear procedure for the development and approval of the annual FLHP direct and indirect overhead rates (i.e., administrative fees) for project development and administration to include early and ongoing consultation with the NPS, and provision of clear documentation and support for the basis of the proposed rates. Further, no end-of-year cost adjustments (i.e., additional charges) proposed by FLHP should be permitted without full disclosure to NPS of the basis for the proposed charge, and concurrence by NPS in this action.

Clarify that the NPS can use Title 23 and Title 49 funds to help support the operation and maintenance of Alternative Transportation Systems

¹ Linked to Title 23 – Section 133(b)(2) and Title 23 – Section 204(b).



Photo

Roads and alternative transportation options can greatly enhance the visitor experience. Here visitors use a Red Bus in Glacier National Park. Photo courtesy of the National Park Foundation.